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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,623

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EXAMINER

ENIN-OKUT, EDU E

ART UNIT

PAPER NUMBER

4132

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,623	Applicant(s) ASO ET AL.	
	Examiner Edu E. Enin-Okut	Art Unit 4132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/10/05, 6/6/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Acknowledgment is made of Applicant's claim for foreign priority to Japanese Patent Application No. JP 2003-070667, filed on March 14, 2003, under 35 U.S.C. 119(a)-(d). A certified copy of that application has been received.

Specification

2. The disclosure is objected to because of the following informalities:

- On p. 1, line 20, "INVNENTION" appears to be a mis-spelling of "INVENTION".
- On p. 3, line 21, recites "an en electric ". It appears that this should be -- *an* electric --.

Appropriate correction is required.

Claim Analysis

3. Regarding claim 15, the word "means" is preceded by the word(s) "control" in an apparent attempt to use a "means" clause to recite a claim element as a means for performing a specified function. This claim must be analyzed using the 3-prong-test to determine if 35 U.S.C. 112, 6th paragraph has been invoked. See MPEP 2181 (I).

As to the first and second prongs of the test, the requirements of these prongs have been met.

As to the third prong of the test, the requirements of this prong have not been met. It appears that the "control means" is written as a function to be performed and recites sufficient acts which preclude the application of 35 U.S.C. 112, 6th paragraph.

Therefore, the means-plus-function language recited in this claim does not satisfy the 3-prong test and will not be treated under 35 U.S.C. 112, 6th paragraph.

Claim Objections

4. Claims 1 and 6 are objected to because of the following informalities:

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Claim 1 recites "first power", "second power" and "third power". It appears that this should be -- *a* first power --, -- *a* second power --, and -- *a* third power --, respectively.

Claim 6 recites "fourth power". It appears that this should be -- *a* fourth power --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-12 and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Nonobe (U.S. Patent No. 6,158,537; cited by IDS).

Regarding claim 1, Nonobe discloses a fuel cell system [power supply system 10] (Abstract) comprising:

- an energy supply comprising a fuel cell [20], a power distributor [relay 42] connected to the fuel cell, and a secondary cell [storage battery 30] connected to the power distributor (9:44-60);
- a load set [motor 32, auxiliary equipment 34] connected to the power distributor (9:54-56); and
- a controller [control unit 50] (9:51-52, 9:59-60).

As to configuring the controller to control the power distributor to warm the energy supply, Nonobe discloses that a controller, control unit 50, is constructed as a logic circuit including a microprocessor and a CPU, a ROM, a RAM, and an input/output port (10:14-16). Thus, one of ordinary skill would appreciate that controller of Nonobe is capable of being configured to control the power distributor in order to warm the energy supply as recited by the functional language of this portion of

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claim 1 because the controller of Nonobe is in communication with the fuel cell system's power distributor and energy system (9:32-36, 9:51-52, 9:59-60).

However, the reference does disclose that the controller [control unit 50] is configured to control the power distributor [relay 42] to warm the energy supply (9:32-33, 12:67-13:6).

As to the functional language recited in claim 1 describing how the controller is to warm the energy supply (see p. 29, lines 10-16 of Applicant's disclosure), one would appreciate that the controller of Nonobe is capable of being configured to alternatively repeat the steps recited by the functional language of this portion of claim 1 because the controller of Nonobe is configured to control the power distributor (9:51-52, 9:59-60).

Regarding claim 2, Nonobe discloses that the load set comprises auxiliary equipment [34] for power generation of the fuel cell (8:62-9:5).

Regarding claims 3, Nonobe discloses a remaining charge monitor 46, e.g., a voltage sensor or a SOC meter, which measures the power charge of the secondary cell [storage battery 30]. One would appreciate that the controller of Nonobe is capable of being configured to control the first power of the energy supply of Nonobe, as recited by the functional language of claims 3, because all the structural limitations upon which this claim depends have been taught by Nonobe. See MPEP 2114.

Regarding claim 4, Nonobe discloses a detection system [temperature sensor] configured to detect a first temperature of the fuel cell (13:7-10) and a second temperature of the secondary cell (14:56-58). One would appreciate that the controller of Nonobe is capable of being configured to have the first power of the energy supply of Nonobe increase, as the first temperature is lower in rising speed than the second temperature; and the second power decrease and the third power increase, as the first temperature is higher in rising speed than the second temperature, as recited by the functional language of claim 4, because all the structural limitations upon which this claim depends have been taught by Nonobe. See MPEP 2114.

Regarding claim 5, Nonobe discloses a controller [control unit 50] in communication with a SOC [SOC meter] of the secondary cell [storage battery 30] (10:6-11). Therefore, one would appreciate that that the controller of Nonobe is capable of being configured to determine a first power of its energy supply within a limited range depending on an SOC of the secondary cell, as recited by the functional language of claim 5, because all the structural limitations upon which this claim depends have been taught by Nonobe. See MPEP 2114.

Regarding claims 6-11, one would appreciate that the controller of Nonobe can be configured to perform the steps recited by the functional language of claims 6-10, because all the structural limitations upon which these claims depend (i.e., see claim 2) have been taught by Nonobe. See MPEP 2114.

Regarding claim 12, Nonobe discloses that the auxiliary equipment comprises an oxidizer supply configured to supply an oxidizer to the fuel cell [air compressor 66] (8:63-66).

Further, one would appreciate that the controller of Nonobe is capable of being configured to increase power consumption at the oxidizer supply [air compressor 66] for the oxidizer to be supplied by an increased flow rate at an increased pressure, to increase the fourth power, as recited by the functional language of claim 5, because all the structural limitations upon which this claim depends have been taught by Nonobe. See MPEP 2114.

Regarding claim 14, one would appreciate that the controller of Nonobe can be configured to perform the steps recited by the functional language of claim 14, because all the structural limitations upon which this claim depends (i.e., see claim 2) have been taught by Nonobe. See MPEP 2114.

With respect to claim 15, the recitation of a “control means” has not invoked treatment under 35 U.S.C. 112, 6th paragraph (see *Claims Analysis* above). Therefore, the limitations recited in this claim have been addressed above with respect to claim 1.

With respect to claim 16, it has been held that, to be entitled to weight in method claims, the recited structure limitations therein must affect the method in a manipulative sense, and not to amount to

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the mere claiming of a use of a particular structure (e.g., *Ex parte Pfeiffer*, 135 USPQ 31 (BPAI 1961)).

It should be noted that the structure recited in the preamble of this claim has been addressed above with respect to claim 1.

As to steps recited in the claim, Nonobe discloses a control method comprising controlling the power distributor [relay 42] to warm the energy supply by alternatively repeating:

- a first power distribution having first power generated at the fuel cell [IF4] and distributed to the secondary cell [IB4<0] and the load set [It4] (11:52-60); and
- a second power distribution [IF1+IB1] having a combination of second power generated at the fuel cell [IF1] and third power discharged from the secondary cell [IB1], distributed to the load set [motor 32, auxiliary equipment 34] (10:66-11:13).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nonobe as applied to claim 2 above, further in view of Mufford et al. (U.S. Patent No. 6,186,254).

Nonobe is applied and incorporated herein for the reasons above.

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Regarding claim 13, Nonobe discloses that the auxiliary equipment further comprises a cooling system [water pump] configured for a water cooling of the fuel cell, with a cooling water line (8:66-9:3).

However, Nonobe does not expressly disclose the cooling system with a radiator provided with a cooling fan, and a bypass member to bypass the radiator.

Mufford teaches a temperature regulating system for a fuel cell powered electric motor vehicle for maintaining fuel cell stack temperature within a temperature range that provides satisfactory cell performance (Abstract). The fuel cell stack 30 includes a coolant inlet port 45 and a coolant outlet port 50 (3:63-67). A plurality of cooling medium conduits or pipes 55 define a coolant path through which the cooling medium flows between the coolant outlet port 50 of the fuel cell stack 30 and the coolant inlet port 45 (4:5-8). The cooling medium also next encounters a bypass valve 100 that controls coolant flow to a radiator 105 and a radiator bypass path 110 (4:53-55). Coolant passing through the radiator 105 is cooled by air flow over the radiator 105, via the use of a variable speed fan 115 or the like (5:8-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the radiator, cooling fan and bypass member of Mufford in the fuel cell system of Nonobe to ensure satisfactory stack performance by regulating the stack temperature.

Further, that artisan would also appreciate the controller of Nonobe, as modified by Mufford, is capable of being configured for operation of its bypass member to increase power consumption at the cooling fan, to increase the fourth power, as recited by the functional language of claim 13, because all the structural limitations upon which this claims depends have been taught by Nonobe and Mufford. See MPEP 2114.

Correspondence / Contact Information

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edu E. Enin-Okut whose telephone number is 571-270-3075. The examiner can normally be reached on Monday-Thursday, 8 a.m. - 4 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward, can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edu E Enin-Okut/
Examiner, Art Unit 4132

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 4132